Developing Tools for the Growth of the N.C. Shellfish Industry: Site Condition Assessment and Economic Impacts

Shellfish aquaculture in North Carolina is a small, yet traditionally important industry to coastal communities, providing locally grown clams and oysters and supplemental income. Despite an increase in seafood demand, acreage under lease and total number of leases has remained relatively constant in recent years. This project examined the scope of the shellfish aquaculture industry in North Carolina. Factors surveyed included the production by species and culture method, sales of shellfish by species and size, market value of cultured product, seed sources, future production and constraints to production. Of the 228 surveys sent to North Carolina leaseholders, 22% were completed. Respondents reported operations of leased acreage ranging from 0.5 to 86 acres, 41% of which were located in Carteret County. Shellfish culture operations were in business for 15 years on average, with 19% of respondents' income generated from shellfish culture activities. Clams and oysters were the dominant species of culture, with the majority producing both species. The top concerns of leaseholders were theft, hurricanes and water quality. A mixed response was received about the view of the industry in the future. Of the respondents, 42% thought the industry would grow in the next five years, 38% thought the industry would decline, and 20% felt the industry would remain stable. Substantial potential exists for current leaseholders to expand because most utilize extensive methods for shellfish production with relatively low yields. Modest increases on existing leases would provide a significant increase in shellfish production. Large-scale increases in North Carolina's shellfish industry will likely require new operations that generate primary income. Assistance with siting new shellfish leases could reduce risks from theft and problematic water quality, and therefore should be included when considering how to best assist growth in the industry.

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Figure 14. Level of concern for major issues surrounding the NC shellfish industry.

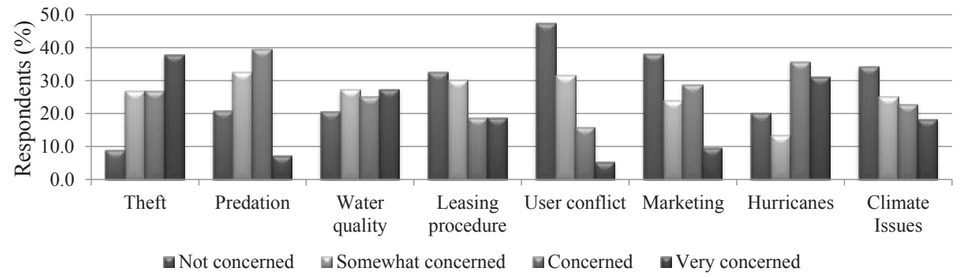


Figure 15. Percent of survey respondents indicating issues that limited industry growth.

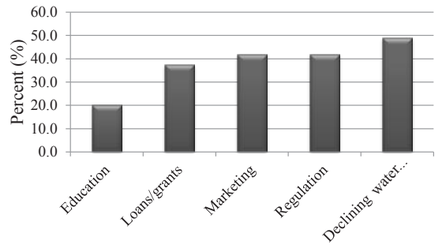
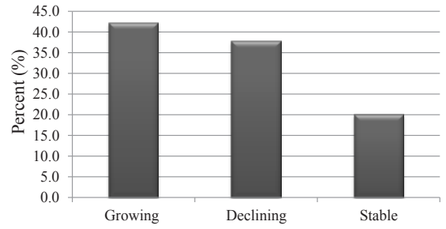


Figure 16. Percent of survey respondents indicating the future of the NC shellfish industry.



Discussion

Molluscan shellfish culture represents two-thirds of all marine aquaculture in North Carolina (NOAA Aquaculture, 2009). Various-sized operations on the East and West coasts of the United States grow clams, oysters and mussels. Along the East Coast, significant growth of the industry is occurring in Virginia (Murray and Hudson, 2011), and is expected to increase similarly in Maryland.

The North Carolina shellfish industry historically has been a small but stable industry, characteristics that appear to apply to the current industry. Based on survey respondents, the majority of leases were 10 acres or less in size, with production from those leases representing a fraction of a leaseholder's income. The majority of income for leaseholders was generated from shore-based employment and commercial fishing.

Despite the relatively small size of individual operations, a significant number, 57%, have been in business for more than 10 years, an indicator of industry stability. The ability to generate secondary income has likely benefited the small-scale nature of the industry. Furthermore, many of the shellfish growers responding to the survey utilized labor-saving methods for clam and oyster production.

For clam production, 71% planted seed on the bottom for growout, while only 25% used nursery-rearing methods that are more intensive.

Similarly, oyster production was dominated by growers who relied on wild oyster larval settlement on their leases, as well as those who relayed small oysters from closed areas to their leases. Both methods require significantly less labor than remote-setting techniques, conducted by only 5% of respondents. The combination of smaller leases and labor-saving methods for production has supported the stability of the industry and helped maintain its part-time nature.

Similar to other industries reliant on the environment, concerns exist for the future of the shellfish culture industry in North Carolina. These concerns include theft on leases, hurricane impacts and deteriorating water quality. Theft on leases can be addressed only through law